

## CLAIMS

1. A database searching apparatus comprising:  
a search engine; and  
a database searchable by the search engine and including a plurality of  
search listings, at least some search listings associated with  
advertisers and including  
a search term specified by an advertiser, and  
a bid/desired rank associated with the search term and the  
advertiser, the bid/desired rank including at least one of:  
a maximum cost per click chargeable to the advertiser, and  
a desired rank desired by the advertiser.
2. The database searching apparatus of claim 1 wherein the  
bid/desired rank further includes a timestamp.
3. The database searching apparatus of claim 2 wherein the  
search engine is configured to  
receive a search request,  
locate one or more search listings having a matching relationship with  
the search request; and  
order search results from the one or more search listings using the  
bid/desired ranks associated with the one or more search  
listings.
4. The database searching apparatus of claim 3 wherein the  
search engine is configured to:  
rank the search results according to the desired rank and descending  
order of maximum cost per click for the respective search  
results.

5. The database searching apparatus of claim 3 wherein the search engine is configured to:  
rank the search results in descending order of maximum cost per click;  
and  
rank search results having equal maximum cost per click according to timestamp.

6. The database searching apparatus of claim 3 wherein the search engine is configured to:  
rank the search results according to the desired rank.

7. The database searching apparatus of claim 1 further comprising:  
an account manager accessible by the advertiser to vary at least one of  
the maximum cost per click and the desired rank for a respective  
bid/desired rank.

8. The database searching apparatus of claim 7 wherein the account manager is further accessible by the advertiser to vary the maximum cost per click for two or more possible ranks specified by the advertiser.

9. The database searching apparatus of claim 1 further comprising:  
one or more software agents configured to  
receive advertiser bid information, and  
act on the advertiser bid information to adjust the cost per click  
for a specified search listing.

10. The database searching apparatus of claim 9 wherein the one or more software agents is configured to  
increase current cost per click of the specified search listing if  
the rank of the specified search listing can be improved  
without exceeding the maximum cost per click; and

decrease the current cost per click of the specified search listing  
without moving the specified search listing to a rank  
worse than the desired rank.

5           11. The database searching apparatus of claim 10 wherein the one  
or more software agents is configured to decrease the current cost per click of  
the specified search listing only if no other search listing will have its  
respective current cost per click increased to decrease the rank of the  
specified search listing.

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12. A method for managing search listings in a search database, the  
method comprising:

storing one or more search listings for an advertiser, each search  
listing including a search term, a cost per click and a maximum  
cost per click chargeable to the advertiser and a desired rank  
desired by the advertiser, each search listing displayable in a  
display rank with other search listings according to the cost per  
click;

receiving advertiser bid information;

storing the advertiser bid information; and

automatically adjusting the cost per click for selected search listings  
when the display rank for the selected search listings changes.

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13. The method of claim 12 wherein automatically adjusting  
comprises:

reducing the cost per click for the selected search listings only if the  
desired rank for the selected search listings will be maintained  
after reducing the cost per click.

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14. The method of claim 12 wherein automatically adjusting  
comprises:

adjusting the cost per click based on the maximum cost per click and not based on the desired rank.

15. The method of claim 12 wherein automatically adjusting comprises:

adjusting the cost per click to maintain the desired rank.

16. The method of claim 12 wherein storing comprises storing a plurality of cost per click values, each respective cost per click value being associated with a respective desired rank.

17. The method of claim 12 wherein storing comprises storing timestamp data associated with one of a time when the advertiser bid information was stored and a time when the advertiser bid information was received.

18. The method of claim 17 wherein automatically adjusting comprises:

identifying a plurality of search listings for the same search term having identical cost per click; and  
sorting the plurality of search listings to a display order according to timestamp data for the plurality of search listings.

19. A system for managing search listings in a search database, the system comprising:

first program code means for storing one or more search listings for an advertiser, each search listing including a search term, a cost per click and a maximum cost per click chargeable to the advertiser and a desired rank desired by the advertiser, each search listing displayable in a display rank with other search listings according to the cost per click;

second program code means for receiving advertiser bid information;

third program code means for storing the advertiser bid information;  
and  
fourth program code means for automatically adjusting the cost per  
click for selected search listings when the display rank for the  
selected search listings changes.

20. A method for managing search listings in a search database, the  
method comprising:

storing one or more search listings for an advertiser, each search  
listing including an associated search term;  
receiving from the advertiser identification information for a search  
listing and a maximum cost per click for the identified search  
listing;  
storing the maximum cost per click for the search listing; and  
determining a cost per click for the identified search listing based on  
the maximum cost per click and other search listings which  
include the search term associated with the identified search  
listing.

21. The method of claim 20 further comprising:  
from time to time, updating cost per click information for the identified  
search listing and the other search listings.

22. The method of claim 20 further comprising:  
receiving desired rank information from the advertiser for the identified  
search listing; and  
determining the cost per click for the identified search listing based at  
least in part on the desired rank information.

23. A system for managing search listings in a search database, the  
system comprising:

first program code configured to store in the search data base one or more search listings for an advertiser, each search listing including an associated search term;

second program code configured to receive from the advertiser identification information for a search listing and a maximum cost per click for the identified search listing;

third program code configured to store the maximum cost per click for the search listing; and

fourth program code configured to determine a cost per click for the identified search listing based on the maximum cost per click and other search listings which include the search term associated with the identified search listing.

24. A method for managing search listings in a search database, the method comprising:

storing one or more search listings for an advertiser, each search listing including an associated search term;

receiving from the advertiser identification information for a search listing and a desired rank for the identified search listing;

storing the desired rank for the search listing; and

determining a cost per click for the identified search listing based on the desired rank and other search listings which include the search term associated with the identified search listing.

25. The method of claim 24 wherein determining the cost per click for the identified search listing comprises:

adjusting the cost per click for the identified search listing so that the identified search listing is displayed with the desired rank with the other search listings.

26. The method of claim 24 wherein determining the cost per click for the identified search listing further comprises:

receiving a maximum cost per click for the identified search listing; and  
increasing the cost per click for the identified search listing so that the  
identified search listing is displayed with the desired rank until  
the cost per click exceeds the maximum cost per click.

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27. The method of claim 24 wherein determining the cost per click  
for the identified search listing further comprises:

receiving from the advertiser a plurality of ranks and a maximum cost  
per click for each rank for the identified search listing; and

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increasing the cost per click for each rank of the identified search listing  
so that the identified search listing is displayed with each  
desired rank until the cost per click for each desired rank  
exceeds the maximum cost per click for the each rank.

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28. The method of claim 24 further comprising:

from time to time, updating cost per click information for the identified  
search listing and the other search listings.

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29. A system for managing search listings in a search database, the  
system comprising:

first program code configured to store one or more search listings for  
an advertiser, each search listing including an associated search  
term;

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second program code configured to receive from the advertiser  
identification information for a search listing and a desired rank  
for the identified search listing;

third program code configured to store the desired rank for the search  
listing; and

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fourth program code configured to determine a cost per click for the  
identified search listing based on the desired rank and other  
search listings which include the search term associated with  
the identified search listing.

30. A method for managing search listings in a search database, the method comprising:

storing a plurality of search listings for an advertiser, each search listing including an associated search term and a cost per click payable by the advertiser;

receiving from the advertiser a designation of one or more search listings for which the cost per click should be automatically adjusted in response to variations in cost per click for other search listings associated with search terms of the designated one or more search listings; and

subsequently, automatically adjusting the cost per click for the designated one or more search listings.

31. The method of claim 30 wherein receiving comprises: receiving a maximum cost per click for each of the one or more search listings.

32. The method of claim 31 wherein automatically adjusting comprises: adjusting the cost per click for a search listing to maintain highest rank possible without exceeding the maximum cost per click when the search listing is ranked with other search listings associated with a common search term.

33. The method of claim 30 wherein receiving comprises: receiving a desired rank for each of the one or more search listings.

34. The method of claim 33 wherein automatically adjusting comprises:





40. The method of claim 39 wherein automatically adjusting comprises:

adjusting the cost per click for each rank for each search listing to maintain the desired rank for the each rank for the each search listing without exceeding the maximum cost per click for the each rank for the each search listing when the search listing is ranked with other search listings associated with a common search term.

41. The method of claim 39 wherein automatically adjusting comprises:

increasing the cost per click for a search listing to maintain the search listing at a highest rank until the cost per click exceeds the maximum cost per click; and

if the search listing can not be maintained at the highest rank, adjusting the cost per click for the search listing to maintain the search listing at a next-highest rank until the cost per click exceeds the maximum cost per click.

42. A method of generating a search result list substantially in real time in response to a search request from a searcher using a computer network, comprising:

maintaining a database including a plurality of search listings, wherein each search listing is associated with a network location, at least one search term, a desired rank and a modifiable bid amount that is independent of other components of the search listing, the bid amount being associated with at least one of the search term and the network location, the bid amount corresponding to a money amount that is deducted from an account of a network information provider associated with the network location upon receipt of a retrieval request for the network location;

receiving a search request from the searcher;

identifying the search listings having search terms generating a match with the search request;

ordering the identified search listings into a search result list in accordance with the values of the respective bid amounts for the identified search listings and the desired rank;

receiving a retrieval request from the searcher to retrieve information associated with a search listing in the search result list; and

recording a retrieval request event including account identification information corresponding to the network information provider, to permit maintenance of accurate account debit records.

43. A method of enabling a network information provider to update information relating to a search listing on a search result list generated by a computer network search engine, the method comprising:

maintaining an account database having at least one account record for each of a plurality of network information providers, said account record including

at least one search listing having a search term and at least one of a modifiable bid amount that is independent of the other components of the search listing and a desired rank specified by a network information provider; and

an account identifier;

receiving from the network information provider a change request for a search listing in the network information provider's account;

updating the search listing in the network information provider's account record in response to the change request; and

determining a position substantially in real time for the updated search listing in a search result list generated by the search engine in response to a search request received from a searcher using the computer network, where the search term of the updated search listing generates a match with the search request and the position of the updated search listing in the search

result list is determined using at least one of the bid amount and the desired rank.

44. A method of enabling a web site promoter using a computer network to update information relating to a search listing within a search result list generated by a search engine substantially in real time in response to a search request received from a remote computer over the computer network, the method comprising:

maintaining an account database having at least one account record for each of a plurality of web site promoters of the computer network, said account record including an account identifier, and at least one search listing having a search term and at least one of a modifiable bid amount that is independent of other components of the search listing and a desired rank specified by a web site promoter;

providing the web site promoter with authenticated login access, wherein the web site promoter's login access permits the web site promoter to modify the web site promoter's account record;

modifying a search listing of the account record upon receiving a request from said web site promoter;

automatically adjusting the modifiable bid amount of the search listing and the modifiable bid amounts of other search listings having a common search term with the modified search listing; and

generating a search result list comprised of search listings wherein the search term for each search listing generates a match with the search request, the search listings in the search result list arranged in an order corresponding to the bid amounts of the search listings.

45. A method for determining cost per click and search listings to be associated with each rank position of a plurality of rank positions of a search result display, the method comprising:

initializing a workspace;

determining a winning search listing for each rank position; and

determining cost per click of each winning search listing.

46. The method of claim 45 wherein initializing the workspace comprises:

identifying matching listing which match a search query received from a searcher, the matching listings being selected from a database of search listings;

for each matching listing, initializing a column of the workspace and associating a listing type with the matching listing;

if the matching listing is of a first type, entering a cost per click for each rank of the matching listing in each corresponding rank of the column;

if the matching listing is of a second type, entering a cost per click of the matching listing at a rank corresponding to the desired rank of the matching listing and all lower ranks of the column;

if the matching listing is of a third type, entering a cost per click of the matching listing in each rank of the column;

if the matching listing is of a fourth type, storing data to mark a desired rank of the matching listing in a corresponding rank of the column.

47. The method of claim 46 further comprising:

if the matching listing is of a fifth type, entering a cost per click of the matching listing at all ranks of the column.

48. The method of claim 45 wherein determining a winning search listing comprises:

for each rank, determining highest cost per click among search listings at the rank;

identifying highest cost search listings at the rank associated with the highest cost per click;



52. A method for determining cost per click and search listings to be associated with each rank position of a plurality of rank positions of a search result display, the method comprising:

initializing a workspace;

identifying a winning search listing for each rank position among active search listings;

inserting the winning search listing in a list of winners at the rank;

if the winning search listing is not a price protected search listing,

assigning the cost per click of the winning search listing for the rank to be a bid amount specified for the rank by an advertiser associated with the winning search listing; and

inactivating other bids of the winning search listing and other bids at the rank of the winning listing.

53. The method of claim 52 further comprising:

if the winning search listing is a price protected search listing, selecting a competing search listing having a next-highest bid amount at the rank of the winning search listing;

if the winning search listing has an earlier time stamp than a time stamp of the competing search listing, assigning the cost per click of the winning search listing for the rank to be the cost per click of the competing search listing; and

otherwise, assigning the cost per click of the winning search listing for the rank to be the cost per click of the competing search listing plus a minimum cost per click increment.

54. The method of claim 52 wherein identifying a winning search listing comprises:

determining a highest active bid amount in the workspace;

among search listings having a bid amount matching the highest active bid amount, determining the lowest rank specified by the search listings;

among search listings having a rank matching the lowest rank,  
 identifying search listings having the highest active bid amount  
 at the lowest rank; and  
 identifying as the winning search listing an identified search listing  
 having an earliest time stamp;

55. A method for managing search listings in a search database, the  
 method comprising:

storing one or more search listings of an advertiser, each search listing  
 including a search term, a cost per click and a maximum cost  
 per click chargeable to the advertiser and a desired rank desired  
 by the advertiser, each search listing displayable in a display  
 rank with other search listings according to the cost per click and  
 the desired rank;

receiving advertiser bid information;

storing the advertiser bid information;

receiving from the advertiser a new desired rank for a search listing;

determining a new maximum cost per click for the search listing

required to achieve the new desired rank for the search listing;

automatically adjusting the cost per click for selected search listings

when the display rank for the selected search listings changes.

56. The method of claim 55 wherein determining the new maximum  
 cost per click comprises:

locating a search listing for the search term having a rank no greater  
 than the new desired rank;

retrieving a maximum cost per click associated with the located search  
 listing; and

determining a bid N cents higher than the retrieved bid amount.

57. The method of claim 56 wherein N equals 1.



58. A method for managing search listings in a search database, the method comprising:

storing one or more search listings for an advertiser, each search listing including a search term, a cost per click and a maximum cost per click chargeable to the advertiser and a desired rank desired by the advertiser, each search listing displayable at a display rank with other search listings according to the cost per click;

receiving from an advertiser associated with one or more selected search listings an indication of at least one of the maximum cost per click and the desired rank for one or more bidded search listings of the one or more selected search listings; and maintaining the display rank of the one or more bidded search listings in accordance with the received indication.

59. The method of claim 58 wherein maintaining the display rank comprises adjusting the cost per click of the one or more bidded search listings to maintain the display rank of the one or more bidded search listings at the desired rank.

60. The method of claim 58 wherein maintaining the display rank comprises:

determining that the display rank of the one or more bidded search listings can not be maintained at the desired rank; and maintaining the display rank of the one or more bidded search listings at a next highest rank.

61. The method of claim 58 wherein maintaining the display rank comprises maintaining the cost per click less than or equal to the maximum cost per click.

62. The method of claim 58 wherein maintaining the display rank comprises:

determining that the display rank of the one or more bidded search listings can not be maintained at the desired rank; and  
adjusting the display rank of the one or more bidded search listings downward until the cost per click does not exceed the maximum cost per click.

63. The method of claim 58 wherein maintaining the display rank comprises:

automatically minimizing cost per click for the one or more bidded search listings while maintaining a current display rank for the one or more bidded search listings.

64. The method of claim 58 wherein maintaining the display rank comprises:

simultaneously optimizing the display rank and the cost per click of the one or more bidded search terms in accordance with the received indication.

65. The method of claim 58 wherein receiving the indication comprises:

receiving a plurality of desired rank values and a like plurality of maximum cost per click values for the one or more bidded search listings.

66. A database search system in which advertisers give economic value when network locations associated with the advertisers are referred to a searcher in response to a query from the searcher, the database search system maintaining one or more of an accounting variable and a referral variable in accordance with advertiser requirements.

67. The database search system of claim 66 wherein the accounting variable comprises a cost per click payable by the advertiser.

68. The database search system of claim 67 wherein the advertiser requirements comprise a maximum cost per click and a desired rank.

69. The database search system of claim 66 wherein the accounting variable comprises an amount debited from an account of the advertiser.

70. The database search system of claim 66 wherein the referral variable comprises a display rank for the advertiser's network locations in search results presented to the searcher.

71. A method for managing search listings in a search database, the method comprising:

storing search listings for one or more advertisers, each search listing including a search term, a cost per click and a maximum cost per click chargeable to the advertiser and a desired rank desired by the advertiser, each search listing displayable at a display rank with other search listings according to the cost per click, at least some of the search listings including a common search term;

receiving from one or more advertisers associated with the search listings including the common search term indications of at least one of the maximum cost per click and the desired rank for the search listings including the common search term; and

maintaining the display rank of the search listings including the common search term in accordance with the received indications.